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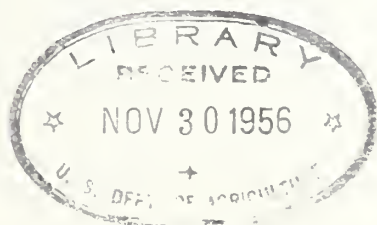
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UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Marketing Service
Marketing Research Division
Washington 25, D. C.

TRENDS BEHIND THE HOG SITUATION



by Gerald Engelman
Head, Livestock Section

Statement to the North Central Regional Meat-Type
Hog Workshop, Columbus, Ohio, May 7, 1956

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I am happy to meet with you today and to have a part in your Meat-Type Hog Workshop. This is an important conference, for the marketing of meat-type hogs is certainly one of the most important problems in American agriculture today.

But, what of the hog situation? Its most significant elements center around the fact that the most rapid drop in hog prices ever reported in the United States for any 6-month period took place from June to December 1955. On June 21, 1955, top hogs were priced at \$22.75 per 100 pounds on the Chicago market. On December 7, 1955, the price for top hogs at Chicago was \$11.75. From the high in June to the low in December, less than 6 months later, the drop was \$11 per 100 pounds. Comparing monthly averages, average prices of barrows and gilts at Chicago during June were \$19.59, and during December \$10.73. This was a drop of about \$9 per 100 pounds in terms of monthly averages.

This drop in hog prices impinged on farmers even more acutely because it followed a year in which prices had been trending downward rather consistently. In April 1954 the Chicago average price of barrows and gilts was \$26.75. The \$16 downswing from April 1954 to December 1955 was the greatest 20-month price decline in the records of hog prices in this country. To be sure, prices have recovered somewhat since then. Nevertheless, the sharp downward trend over the last two years, and the extremely severe price drop of last year, seem to be especially significant in looking at the present hog situation.

Here is a chart which shows annual average prices and annual slaughter for the past 7 years (fig. 1). Of course, the important reason for the recent price decline was the increase in marketings during 1955. The total slaughter of hogs in 1955 was estimated at about 80.5 million head. This was about 12 percent larger than in 1954. With this increase in hog slaughter, the average price for the year dropped about 29 percent from 1954 to 1955. On the average, during periods of stability in the general price level, a 10 percent change in production from one year to another would be accompanied by

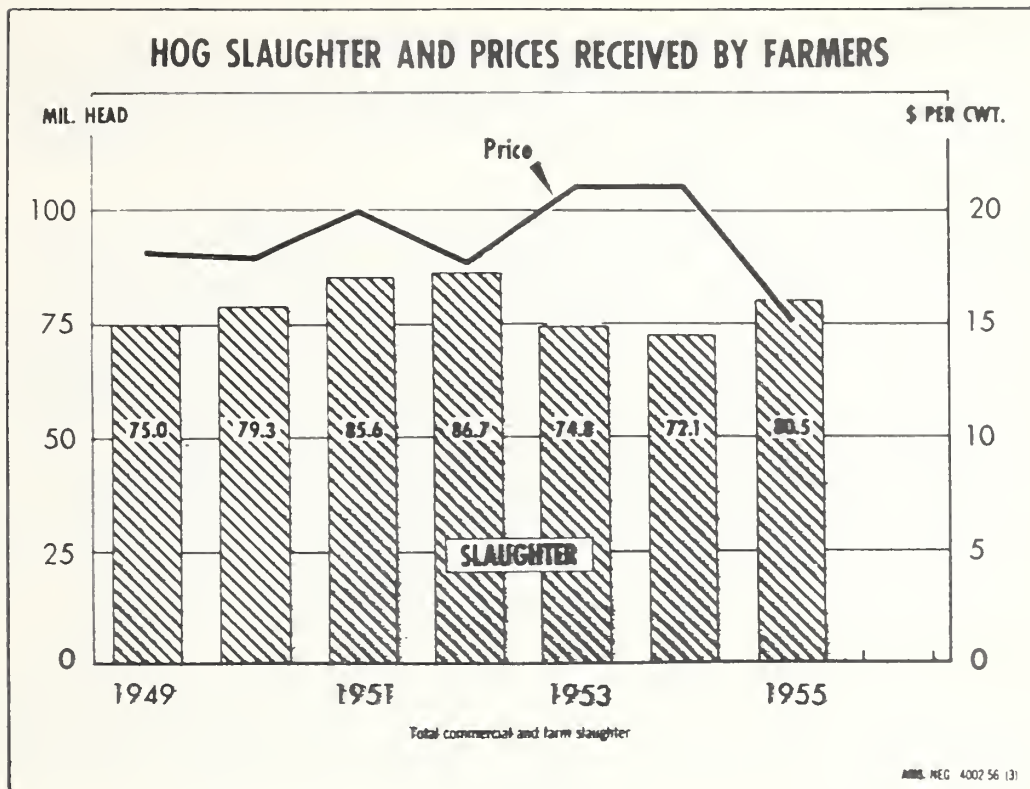


Figure 1

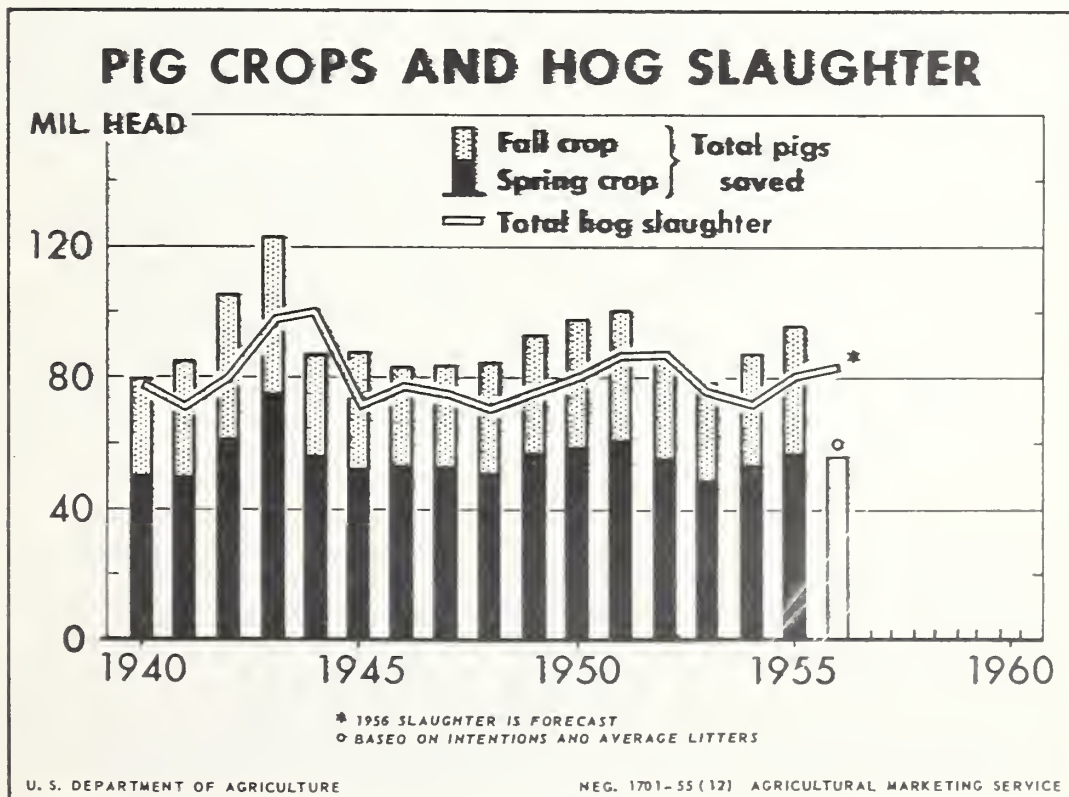


Figure 2

a 15 to 17 percent change in price in the opposite direction. The price decline from 1954 to 1955, however, was about 50 percent greater than would usually be expected with a 12 percent increase in marketings.

Here is another chart (fig. 2) showing pig crops and hog slaughter from 1940 up to the present. It indicates that the recent increases in slaughterings certainly were not extreme. Several other features about this chart would be worth a mention. One point is that after a period of several years of increasing production, slaughter usually reaches a peak the year after pig crops reach their peak. This is because fall pig crops, of course, are carried over to the next year for marketing. This year's slaughter is expected to average above last year for the entire year. Another point worth noting is that periods of increasing production tend to be more gradual and last longer than the decreases, which appear more sharply on any time series such as this one.

No talk on the hog situation would be quite in character if we didn't take a look at the hog-corn price ratio and its relation to hog slaughter (fig. 3). This chart gives us the picture since 1920. The interval between peak years in this sequence usually varies from 3 to 5 years.

Since about half of the total corn production in this country is usually fed to hogs, the production of hogs has traditionally been geared to the quantity of corn produced. With the coming of price supports and storage programs for corn the direct connection between the corn supplies may have been weakened somewhat. Nevertheless, the hog-corn price ratio--the number of bushels of corn which can be exchanged for 100 pounds of hogs--still appears to remain a controlling influence. There are several points worth noting on this chart. The hog-corn ratio has been trending upward over the past 25 years. With the larger usage of concentrate supplements and higher charges for labor and overhead, corn comprises a smaller percentage of the total production costs. The longer time span for this chart tends to confirm the previous chart in the fact that the expansion phases for hog production seem to be more gradual and require a longer period of years than the contractions in hog production, which in some cases are quite precipitous.

Here is another chart (fig. 4) which shows the influence of the hog-corn price ratio during the fall months from September to December on farrowings of spring pigs. In this chart the years are lagged so that the percentage change in sows farrowings is directly below the hog-corn price ratio of the previous fall. There is a rather striking close relationship between the fall hog-corn price ratio and the following spring changes in the number of sows farrowing. For what it may be worth, it's interesting to note that since 1924 there have been five periods of 2 or 3 years of

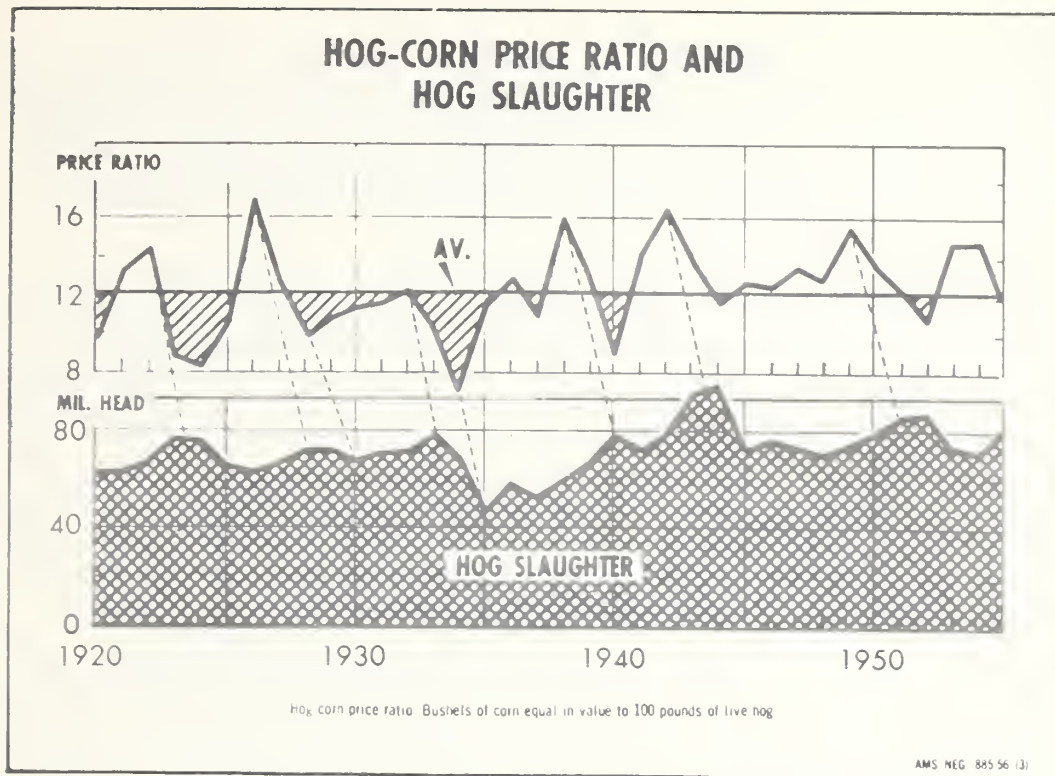


Figure 3

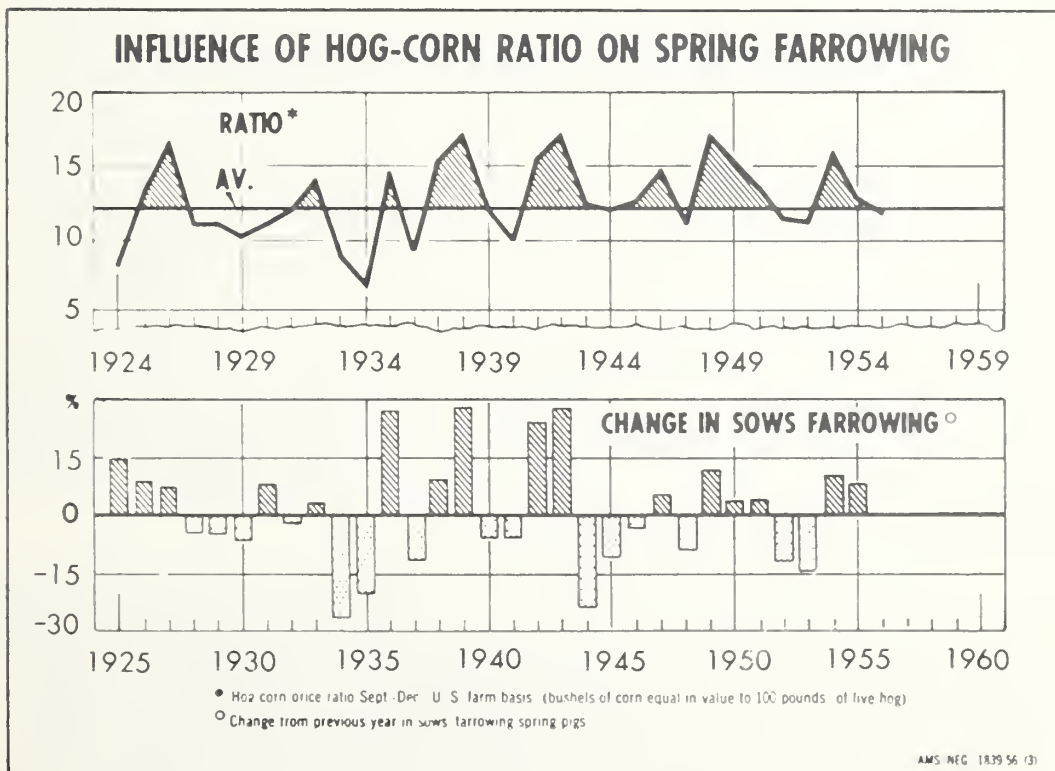


Figure 4

successively increasing numbers of sows farrowing. Following each of the first four of these periods the number of sows farrowing has decreased 2 or 3 years successively. Incidentally, hog producers have indicated this year their intention to reduce the number of spring pigs by about 2 percent.

So much for the annual data on prices and production. Here is a more detailed chart on monthly pork production and prices received by farmers since 1949 (fig. 5). The seasonal peak in marketings of the spring pig crop usually comes in either November or December. Sometimes there is a secondary seasonal peak when fall pigs are marketed in larger numbers. This is followed by a summer "trough," after which pork production again increases sharply during the fall. Seasonal highs in marketings are usually associated with seasonal lows in prices. However, the seasonal changes in prices are not as large percentagewise nor as consistent as the seasonal changes in marketings.

The average seasonal changes in commercial pork production and in prices at Chicago for the period from 1947 to 1953 are shown in another chart (fig. 6). On the basis of this chart, commercial pork production might be expected to increase about 68 percent between July and December, while average prices of barrows and gilts decrease about 20 percent during the same period. Within the usual seasonal pattern, therefore, a 10-percent increase in production from July to December is associated with a 2.9 percent drop in farm prices. During late 1955, however, the expansion phase of the hog production cycle was superimposed upon the usual seasonal increase in fall marketings. Pork production therefore increased about 93 percent from July to December. Prices dropped about 40 percent. In this case a 10-percent increase in production seasonally was associated with a 4.3-percent decrease in prices. During the fall marketing season in 1955, therefore, hog prices dropped about 50 percent more than we would have expected with the increase in marketing which took place. The rather dramatic 20-month downswing in prices at Chicago, from the April 1954 monthly average of \$26.75 to the December 1955 average of \$10.73, was, of course, caused primarily by increases in production. Nevertheless, the price decline was much greater than would have been indicated by the past relationship between prices and production. Hog prices have been much more sensitive to increases in marketings recently than was the case several years ago.

Such a sharp drop in prices always raises several questions about marketing margins in the minds of both consumers and farmers. Consumers wonder if retail prices for pork have fully reflected declining prices for hogs. The farmers are concerned about the extent to which lower prices for hogs on the farm may have been associated with and in part caused by a general widening of the marketing margin. Here is a chart which shows the longtime trends

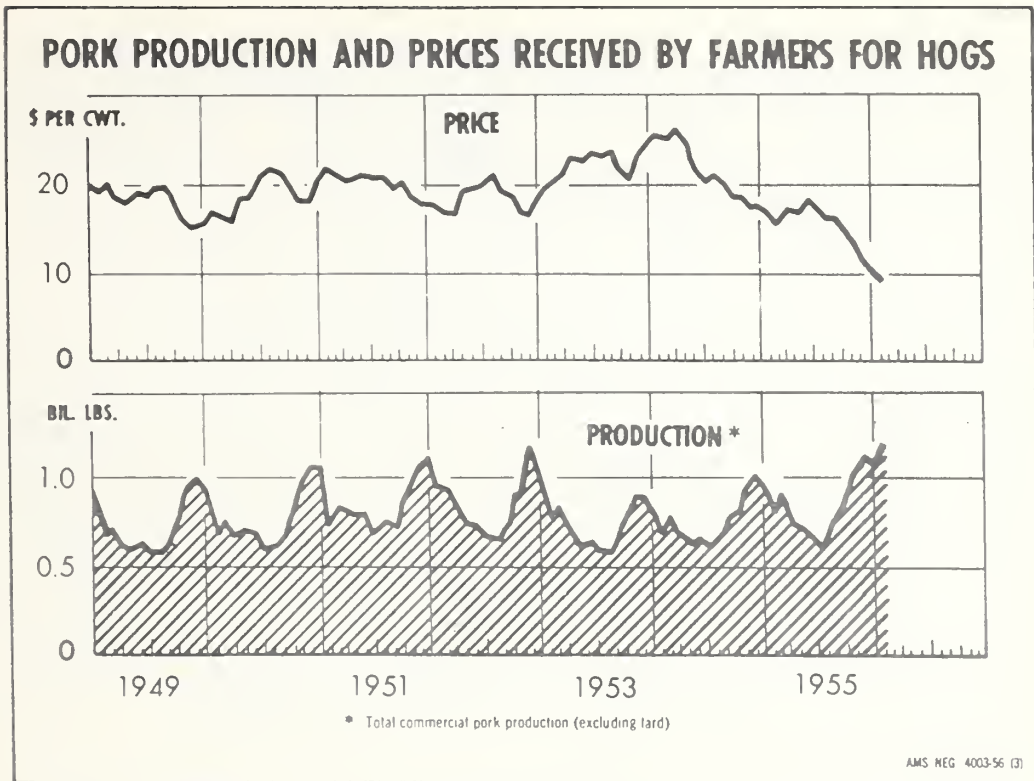


Figure 5

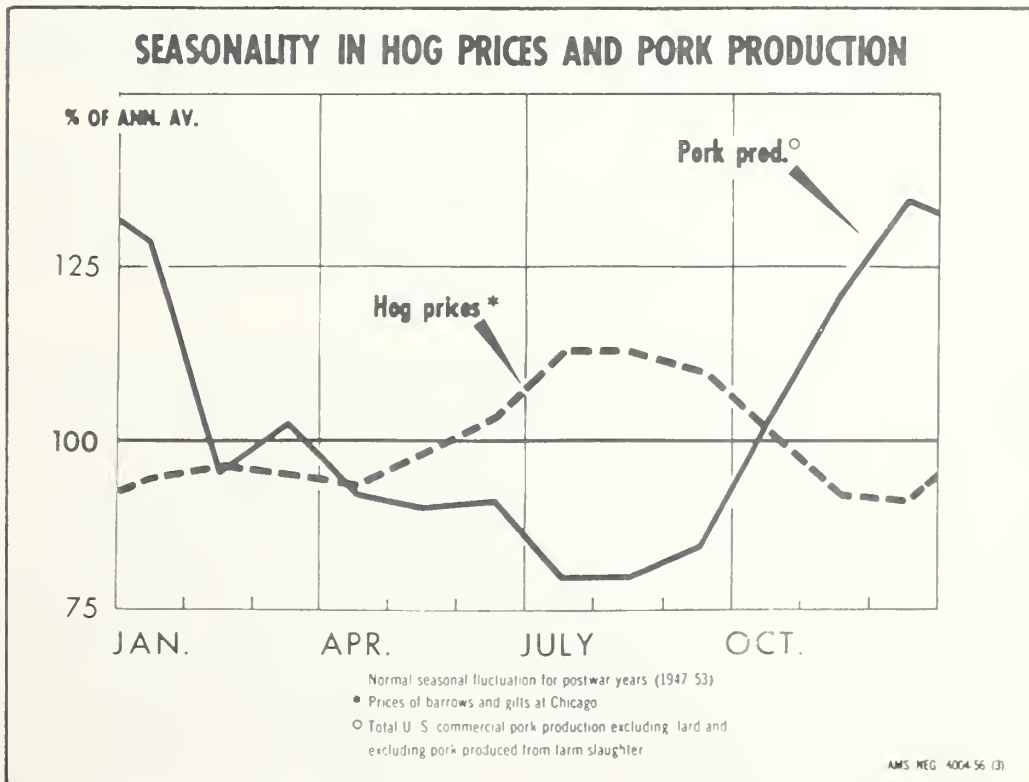


Figure 6

in marketing margins from 1919 up to the present (fig. 7). Marketing margins for pork were relatively stable from the period 1919 to the beginning of the great depression. Margins narrowed sharply during the depression years reaching an alltime low of 8.2 cents a pound per retail pound of pork in 1933. As prices tended to recover during the next two years, marketing margins widened and then tended to narrow gradually somewhat until World War II. When price ceilings were removed after World War II, retail pork prices, hog prices, and marketing margins all increased sharply. In one year, 1946 to 1947, margins widened from 12.7 cents per pound retail weight to 17.5 cents. This was the greatest annual increase in pork marketing margins we have ever experienced. The retail marketing margins for pork then tended to widen gradually to 23.7 cents per pound in 1955, which was a record high. The broad trends in marketing margins shown in this chart probably reflect the changing costs of providing marketing services which include labor, rent, transportation, equipment and supplies that are involved in moving and converting the hogs on the farm to pork in the customer's grocery carts. Changes in marketing margins during the year, however, do not bear such a close relationship to changes in the costs of providing marketing services.

Here is a chart which gives us a more detailed look at marketing changes over a shorter period (fig. 8). It shows that the changes in the farm value of 1.82 pounds of live hogs, equivalent to a pound of pork at retail, tended to parallel roughly at least the movements of retail pork prices. Nevertheless, there were some rather substantial fluctuations in marketing margins within the year during this period.

Three other important characteristics of prices in margins during this period are shown in this chart. One of these is (1) the gradual widening of farm-to-retail margins during this period. Since 1947 margins have widened 6.2 cents a pound, or at an average annual rate of about .8 of a cent a year.

Another tendency is (2) the seasonal pattern of wider marketing margins in the latter half of the year than in the first half. On the average, the margin for converting 1.82 pounds of live hog on the farm to 1 pound of pork at retail store was about 1.8 cents more during the latter half of the year. This is equivalent to an increase of about \$1 per 100 pounds live weight in the marketing bill in the late summer and fall. A part of this seasonal increase in marketing margins may be due to the changing number of hogs marketed, which actually represents changing demands for marketing services. With increased marketings, packers, of course, have to expand their hog kill. This requires more hours of work per week. This in most cases results in overtime pay. In this situation packers have no problem at all in obtaining the supply of hogs they need. But they do often have a problem in handling all the hogs

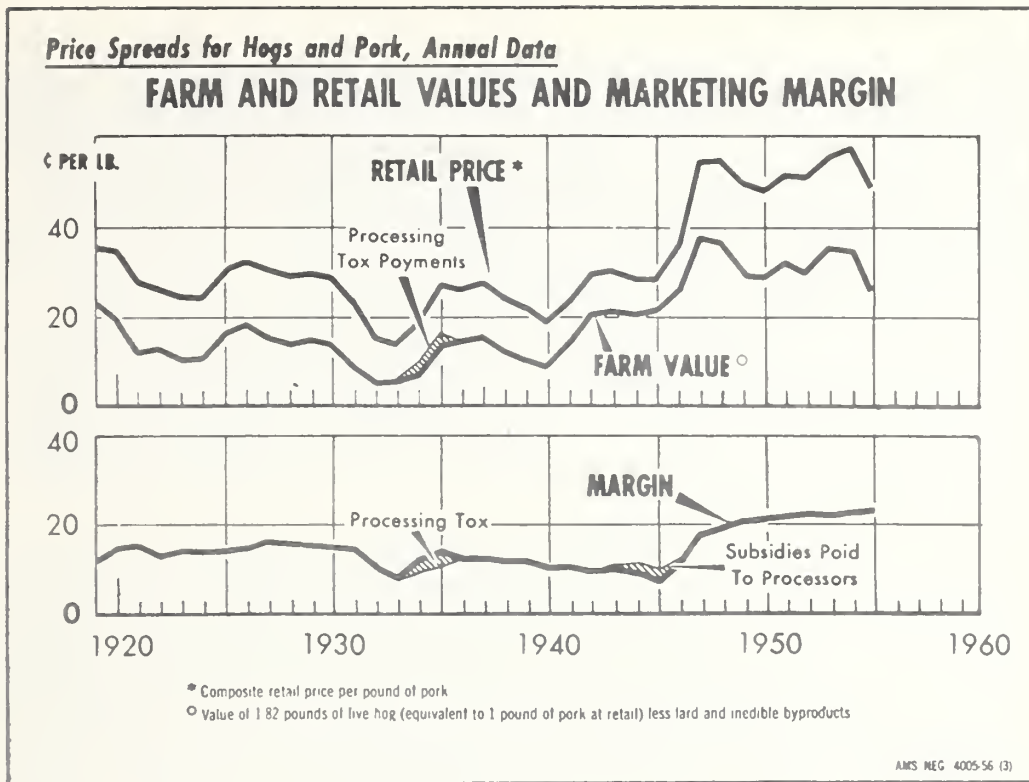


Figure 7

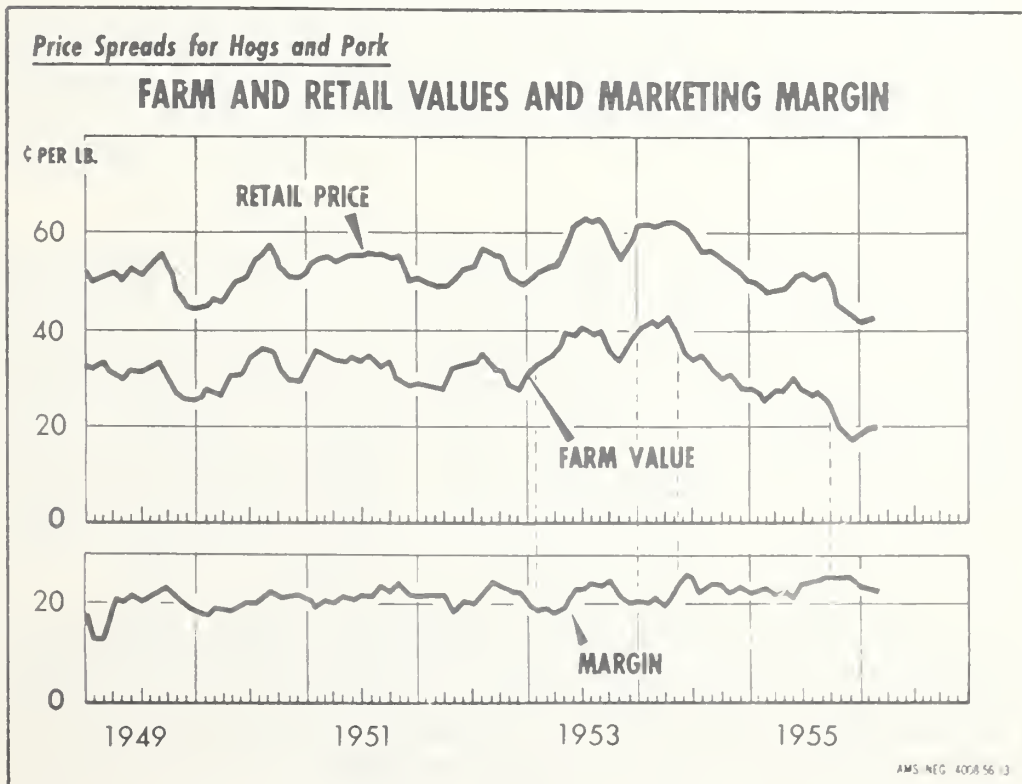


Figure 8

that are delivered to them. The live hog market then has a weaker undertone. Packer-wholesaler spreads become wider during the fall when farmers begin selling their spring pigs in sizable numbers and when there is said to be a buyer's market. Large hog marketings represent a high demand for marketing services. The supply of marketing services, however, is rather inflexible in the short run in terms of plant facilities and even in terms of the labor supply. With the high demand for marketing services and a restricted supply of plants, equipment and labor in the short run, the marketing margin--or the price for marketing services--tends to be rather high. The reverse is true when hog marketings are light. Then the demand for marketing services is low and packers often must take a lower margin--or price--for the processing and wholesaling services they provide.

Another factor influencing the seasonal pattern of the overall marketing margin is (3) the tendency for lags in price adjustments between farm and wholesale prices and between wholesale and retail prices. Some of the effects of the lags in the adjustment of retail prices behind changes in farm prices are shown in the chart. For example, in early 1953 farm prices rose much more rapidly than retail prices and margins appeared to be squeezed for a time. This also happened in late 1953 and early 1954. In mid 1954, however, margins widened sharply when retail prices lagged behind the sharply dropping prices of live hogs. In the latter half of 1955 the lag of retail prices behind the rapidly declining hog prices brought the overall marketing margins to a record high figure. From the second quarter to the fourth quarter during 1955, retail prices for pork dropped 3.7 cents a pound while the equivalent quantity of live hogs dropped about 8.0 cents in value. The marketing margin, therefore, increased by 4.3 cents a pound of retail pork.

Why do changes in retail prices usually follow behind changes in wholesale prices, and wholesale prices behind live animal prices? Within any year pork supplies fluctuate more than does the consumer demand for pork. For this reason the focal point in pricing pork and live hogs appears to be the packer buying level. This is because changes in pork supplies are first felt at the packer buying level rather than at the retail level. Hog prices usually respond rather rapidly to pronounced changes in hog marketings. The changes in wholesale and retail prices usually follow behind the changes in live hog prices but not always by a corresponding amount. The first impact of changes of pork supplies is on packers' inventories. With small changes in hog marketings, inventories may be adjusted without a corresponding change in wholesale prices. With substantial increases in hog marketings, however, packers must lower wholesale pork prices in order to move the increased volume of pork. They raise wholesale prices in order to ration the smaller supplies among their customers if marketings have decreased.

Retailers often ignore small wholesale price changes and wait until definite trends in wholesale prices become established before changing retail prices. Retailers are often rather reluctant to change prices because of possible adverse reaction of consumers to the rapidly changing prices. They generally believe that consumers prefer a relatively stable price situation rather than one in which prices are constantly changing by small amounts. In periods of rising pork prices, retailers appear to be especially fearful of an adverse consumer reaction to the full force of the increasing price level. This is one important reason why retail prices lag behind wholesale during upward price trends. When pork supplies increase and wholesale prices decline there is little immediate direct economic incentive for retailers to lower their retail pork prices to move the larger quantity of pork. Retailers buy only that quantity of pork they believe they can sell. If the period of lower wholesale prices follows a period in which retail margins were "squeezed," the retailers may look at the drop in wholesale prices as a favorable market development, permitting them to regain what they believe to be a proper margin. Immediate pricing decisions of retailers are not compelled, nor are they persuaded, by the increasing packers' inventories of wholesale pork which have to be moved. Lags in price adjustments and successive widenings and narrowings in marketing margins appear to be characteristic of our marketing system.

The tendency for retail prices to lag behind changes in wholesale and farm prices results in alternate squeezes and widenings of marketing margins over the short run. This tends to accentuate the instability of farm prices of hogs during the year. It widens the seasonal variations in hog prices and creates special problems for producers.

A moment ago we spoke of the fact that monthly average prices for barrows and gilts in Chicago dropped about \$9 per 100 pounds between June and December of last year. It appears that about \$2.50 of this \$9 price decline from June to December was caused by the failure of wholesale and retail prices of pork to fall as fast as farm prices for hogs, or, in other words, by the widening of the farm-to-retail marketing margins. About \$1 of this increase is the usually expected seasonal change. The margins, therefore, widened about \$1.50 per 100 pounds live weight more from the second to the fourth quarter than would usually be expected on the basis of the past seasonal patterns for marketing margins.

Let's direct our attention to another factor which has certainly contributed to a decline in hog prices. This is the increasing production and consumption of competing meats which is shown in the next chart (fig. 9). Per capita consumption of beef increased from 55.3 pounds (carcass weight) in 1951 to an alltime high of 81.2 pounds in 1955. Beef and veal consumption combined increased from 61.9 pounds per capita in 1951 to 90.6 pounds in 1955. That's

almost a 50 percent increase in four years. As a matter of fact consumption of all red meats was at a 10-year low of 136 pounds per capita in 1951. But it is estimated at about 161 pounds for 1955, the high point since 1908, and forecast at 162-1/2 for 1956. The chart shows that, while pork consumption per capita appears to be about equal to the prewar average, beef consumption is about one-third higher.

Per capita consumption of poultry meat also has increased substantially in the last 15 years. During the 1930's poultry meat consumption averaged somewhat more than 15 pounds on the ready-to-cook basis. In 1940 poultry consumption stood near 17 pounds per capita. By 1950 it had risen to 24 pounds, and by 1955 to about 27 pounds per capita.

With most competing meats, especially beef, at already high levels of consumption during the past few years, it appears that the economy may have had less capacity than usual to accept the extra supply of pork which came on the market during the fall of 1955. With consumption of meat already high, demand may be less resilient. Added supplies probably cannot be absorbed without a greater than normal reduction in price.

Now let's take a look at some of the trends behind the demand side of this pork business. The next chart shows the relationship between the value of meat consumed and disposable income (fig. 10). One very important factor underlying recent trends in hog prices is that for the last three years consumer expenditures for meat have not kept pace with consumer income. Consumers spent very close to 6 percent of their income on meats during the 1920's and through most of the 1930's. During World War II, when incomes expanded rapidly but expenditures and prices were restrained, the percentage expenditures for meat dropped sharply. At the end of the war, with the removal of controls, expenditures for meat climbed sharply to about 6.6 percent of consumer income in 1947. This was the period in which the so-called "hard goods"--cars, household appliances, and even housing--were in critically short supply and more consumer income was diverted to the purchase of food. Thereafter, expenditures for meat appeared to resume the prewar relationship adding up to a little less than 6 percent of consumer income. In 1952 the figure was 5.7 percent. Since 1952, however, consumer expenditures for meat have not kept pace with increases in income. By 1955 the percentage of consumer income spent for meat had dropped to 5.1 percent.

For pork producers an even more critical situation stems from the indications that pork has been gradually losing ground in relation to beef in the consumer's favor. This shift shows up in the next chart (fig. 11). Expenditures for both beef and pork have fluctuated considerably over the past 40 years. The percentage of

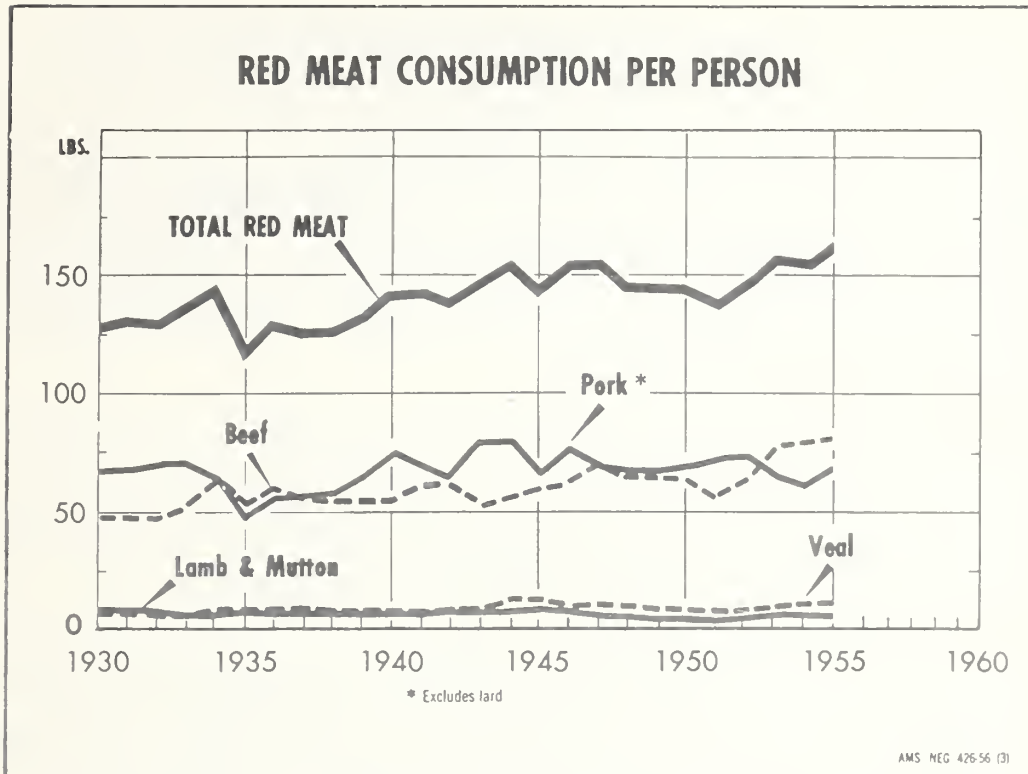


Figure 9

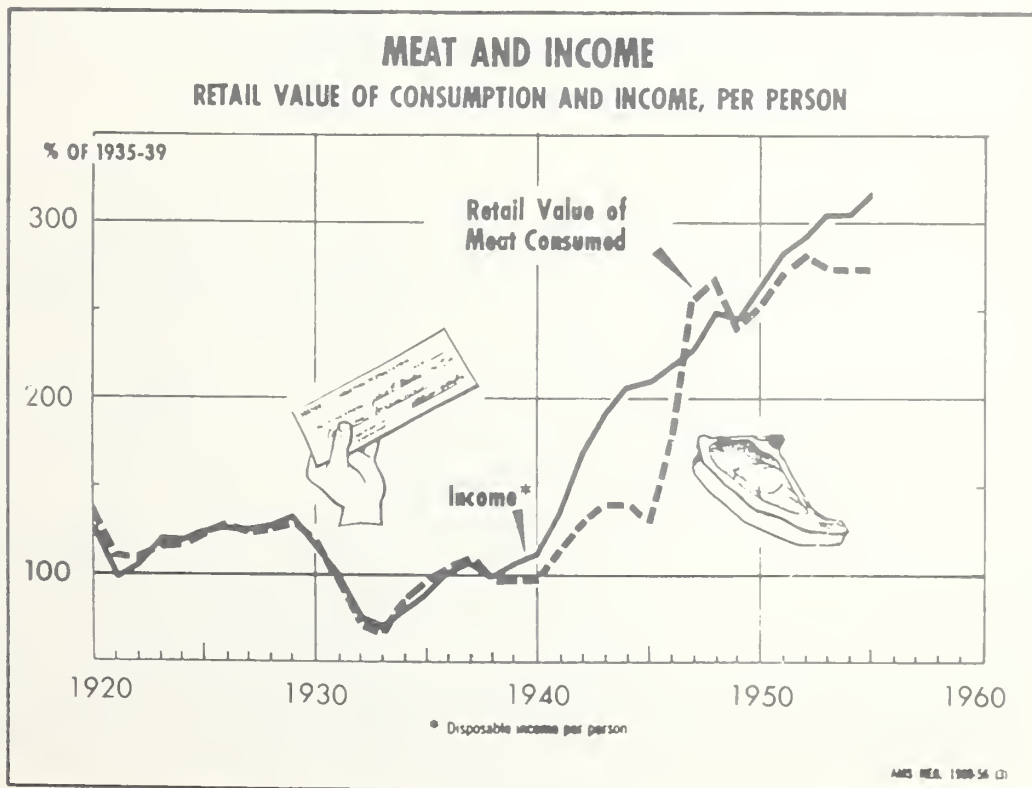


Figure 10

income spent for beef, however, has maintained a relatively stable trend, while the proportion spent for pork has trended downward. Consumers spent more of their budget for pork than beef up to 1933, with the exception of two years during World War I. Consumer expenditures for pork and for beef were about equal from 1933 to 1947. Since 1947, however, expenditures for pork have dropped sharply while the percentage of expenditures for beef have remained rather stable. During the 1920's consumers spent about 3 percent of income on pork and about 2-1/4 percent on beef. In 1955 consumers spent about 2-3/4 percent of income on beef and only 1.9 percent on pork.

This change in consumer purchase of pork also is reflected in the declining trend of pork prices at retail as compared to beef. The next chart shows that the path of the pork-beef price ratio (pork prices expressed as a percentage of choice beef prices) is somewhat irregular, but over the long sweep of the last forty years this ratio has been trending downward all the way (fig. 12).

Several factors may have a bearing on this shift in consumer purchases. Urban people on the average eat more beef and less pork than farm people, and the population has become more urbanized. Even rural people have developed more urbanized tastes with increased use of frozen food lockers and home freezers. Also beef has a greater income elasticity than pork. By that we mean that beef purchases tend to increase more with rising income than pork purchases, which are less affected by increases in income. Rising income since the war may account for part of the apparently worsened position of pork since 1947. Still another point we should not overlook, however, is the growing dislike that consumers have for pork that carries excess fat.

This has been a gradual change in consumer preferences over a long period of time. In our Meat-Type Hog Workshop today it will be well to take a more detailed look at some of the indicators which illustrate the increasing distaste that consumers have for fat in pork cuts and for pork fat generally. Here is a chart that shows the wholesale prices at Chicago for certain selected pork items for 50 years back (fig. 13). In the early years of the current century loins, bellies, lard, and plates and jowls were all selling relatively close to the same figure. In the later years loins, one of the four major lean cuts, have been in greater demand and their prices have generally trended upward. Prices for hams, butts, and picnics and the remaining lean cuts have followed trends for loin. Before 1920 prices for lard and for the fat cuts which are readily converted into lard were held up by relatively strong export demand, as well as a rather strong domestic demand. Actually in the early part of this period lard was higher priced than any other pork item; today it is the cheapest major pork product. It's worth only about one-third the price of most of the lean cuts. Bellies, which are sold primarily

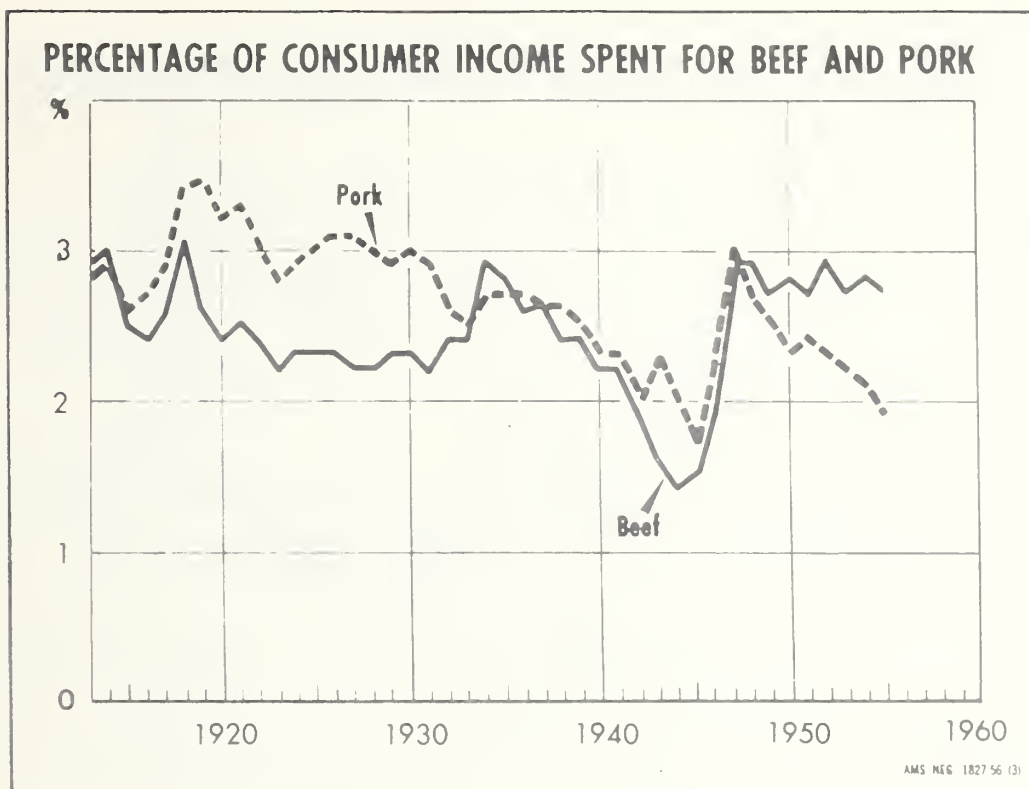


Figure 11

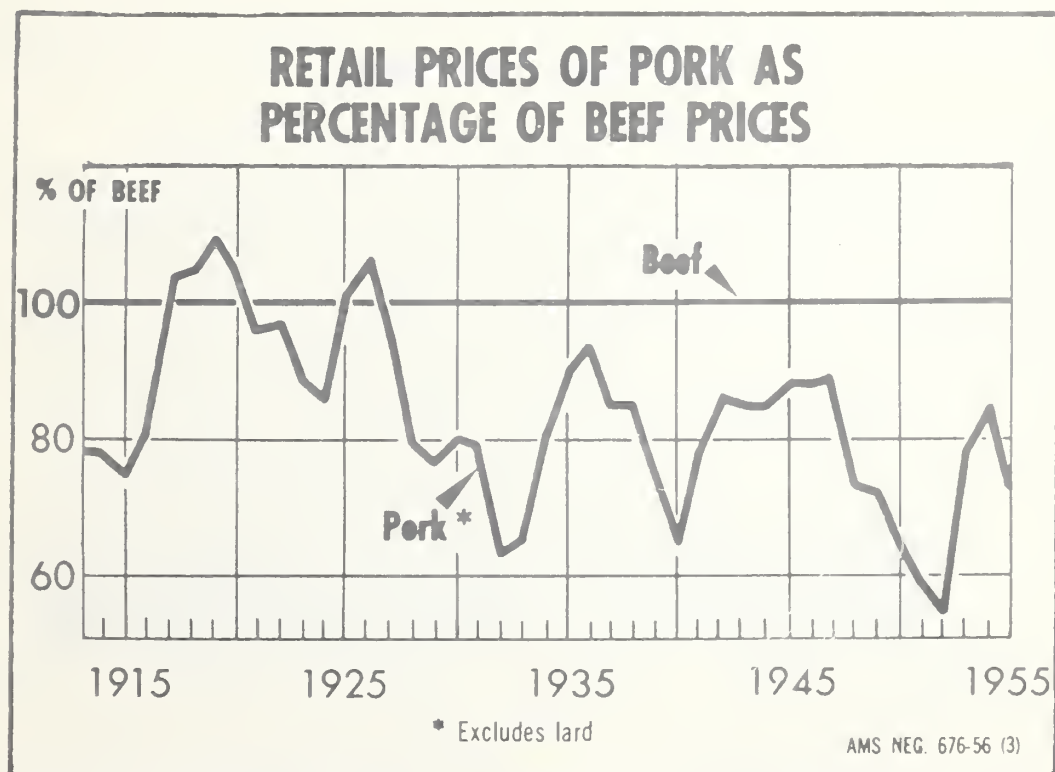


Figure 12

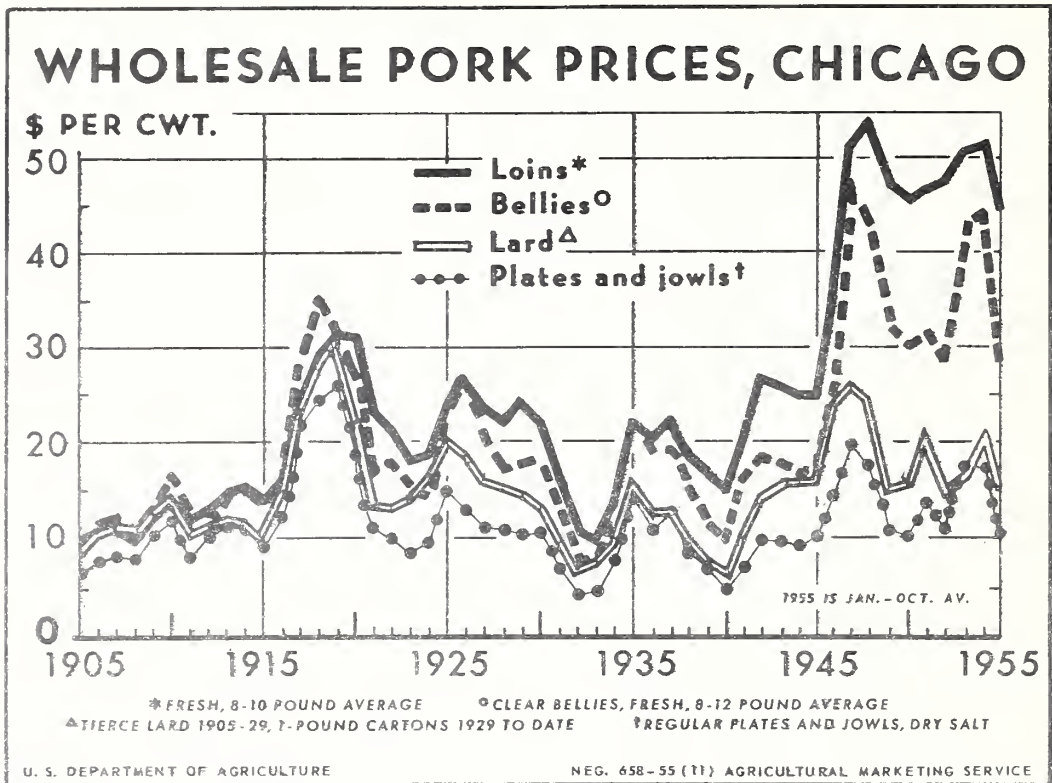


Figure 13

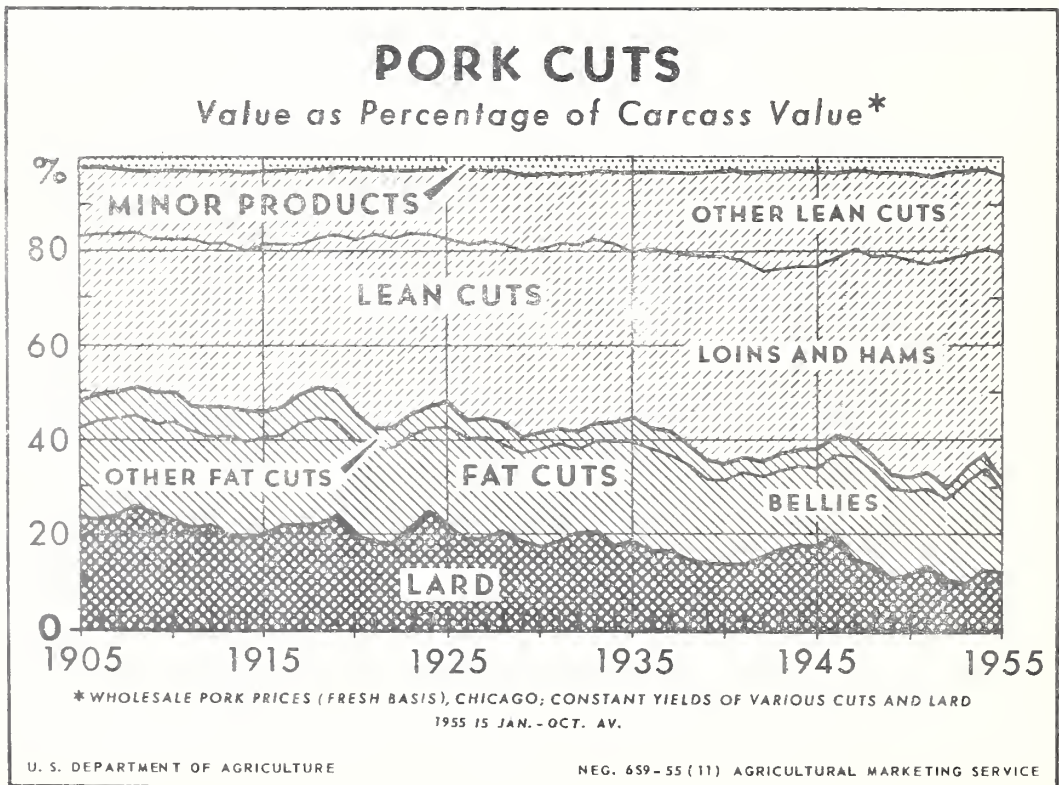


Figure 14

as bacon, are in an intermediate position. Bacon prices have not increased as much as prices of the lean cuts over the years, but much more than the price of lard.

The declining prices of lard relative to prices of lean cuts mean that more and more of the total value returned for each hog has had to come from the lean cuts. The next chart (fig. 14) shows that the lean cuts contributed about half of the total value of the hog in 1905, but about two-thirds of the value in 1955. On the other hand, lard contributed about 24 percent of the total value in 1905, but only about 12 percent in 1955. Constant yields for the different pork items were assumed for this comparison of prices and the values.

The diverging trends of prices of fat and lean cuts are shown more dramatically in another chart (fig. 15). Here we have the prices of lean cuts and the prices of the fat portion of the hog carcass, which is normally rendered into lard, pictured in their relation to live hog values. For this chart, fat was priced at 80 percent of the lard price. That's about the average yield of lard from fatbacks, plates, and fat trimmings that are rendered into lard. The fat portions of the carcass were worth more than lean cuts during the early part of the century. As a matter of fact, lard prices compared rather favorably with lean cuts up until about 1920. However, there has been a rather consistent widening of the gap between prices of lean cuts and fat from the beginning of the century up to the present time. Last year lean cuts were worth 84 percent more than live hogs. Fat, on the other hand, was worth about 37 percent less than live hogs pound for pound.

A moment ago we mentioned exports as being a factor in the strong position of lard before 1920. The next chart (fig. 16) gives the lard production and export picture since 1900. During the first 20 years of the century we exported about one-third of the lard we produced. After 1920, however, exports and production began to pull away from each other, although we still had a relatively strong export demand through most of the 1920's. In 1955 lard exports were about 21% of our total domestic production. Aside from the decline in foreign demand, the lard price situation has also been substantially weaker on the domestic side since the 1920's.

Lard is only one of the rather sizable complex of fats and oils which are to varying degrees competitive with each other. Expansion in the U. S. production of vegetable oils during the last several decades is dramatized by a chart on soybean production and exports in this country (fig. 17). This chart is especially interesting because soybean production is concentrated in the Corn Belt where most of the hogs also are produced. Soybean production has expanded about 25 times since 1930. A bushel of soybeans will yield about 10 pounds of soybean oil. In the last few years this country has been processing more soybean oil than lard. Soybean oil is a

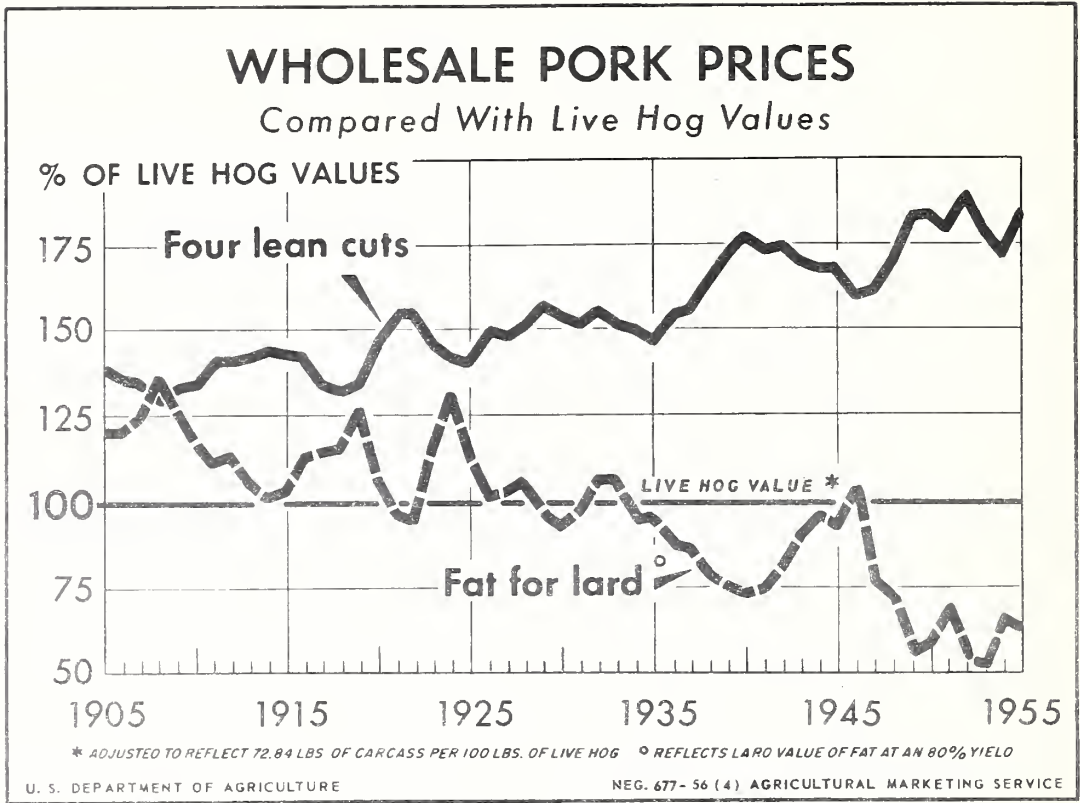


Figure 15

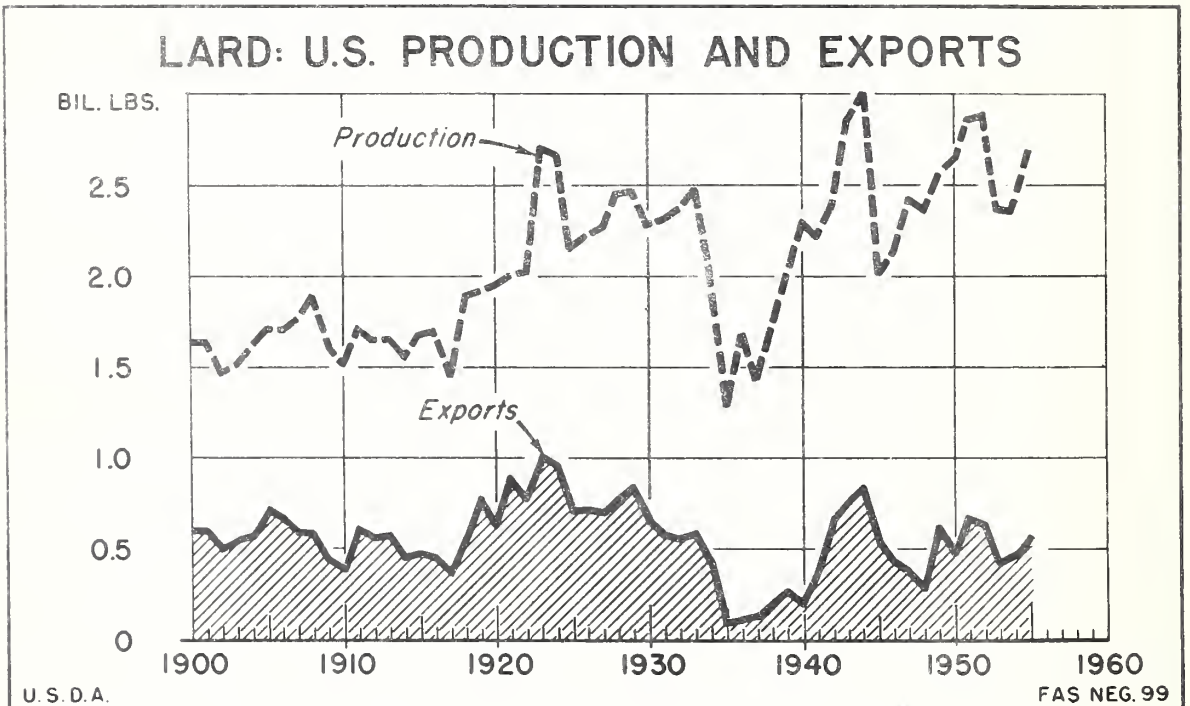


Figure 16

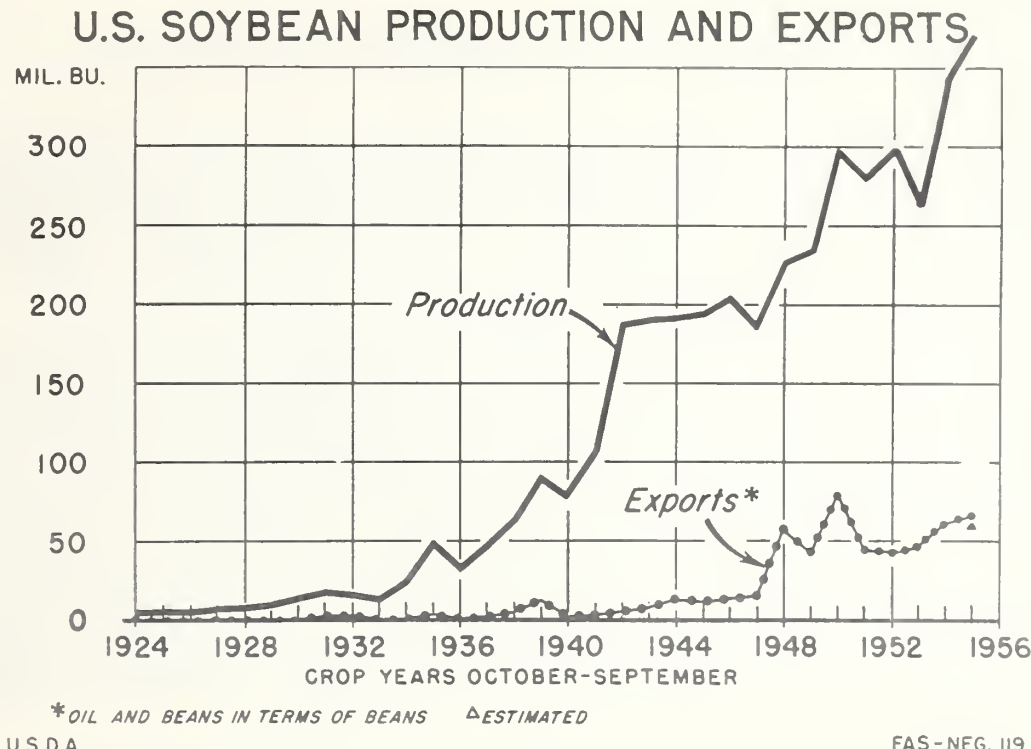


Figure 17

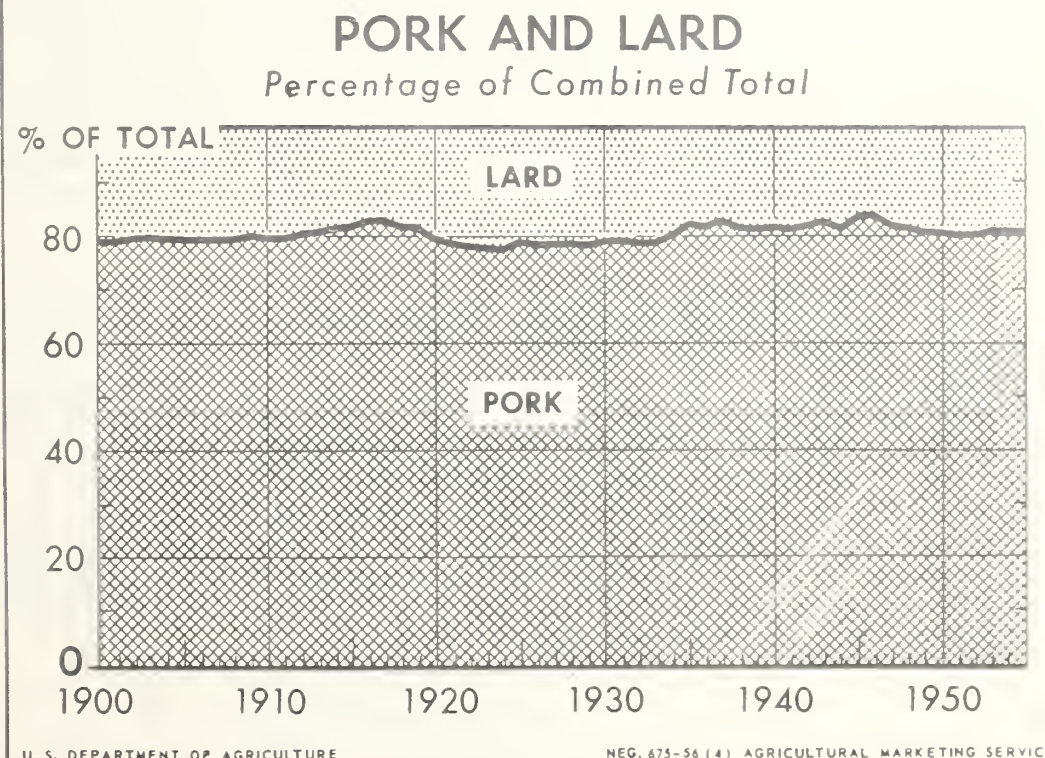


Figure 18

most important ingredient both of vegetable oil substitutes for lard and of margarine.

With the changing price relationships for lard and lean cuts which have taken place during the first half of the century, it is rather interesting to note what has taken place in the production response to these changing price trends. The next chart (fig. 18) shows that we are producing almost the same proportion of lard, about one pound of lard to four pounds of pork as we did at the beginning of the century. Now this does not mean that we haven't changed the type of our hogs during this period. Over the last 50 years we have had several swings back and forth from the chunky to the meatier kind. The average market weights have changed too. Weights of hogs slaughtered under Federal inspection, which averaged 225 pounds from 1921 to 1925, were up to 249 pounds from 1947 to 1951 and have averaged around 242 pounds in recent years. These heavier marketing weights probably offset to a certain extent, at least, the effects of the trend toward the newer meat-type strains and breeds which have been developed lately. The new closer trim on pork cuts adopted by packers last fall also would increase the yields of lard if it were carried on throughout the entire industry.

Lard is, of course, a byproduct. Moreover, it's a joint product. But we know it isn't produced in a fixed relationship to the yield of lean meat.

Our pricing system for pork and for hogs may be a little weak in carrying the necessary price incentives all the way back to the farmer to encourage a change in the type of hogs produced. In the first place consumers are not given an adequate opportunity to discriminate in terms of price against the fatter pork chops and pork roasts and other cuts they see in the display case. And second, there is still not enough grade sorting in marketing. Not enough hogs are sold by grades or by quality differentiation.

During the past few minutes we have looked at a lot of the trends that lie behind the present hog situation. But what of the future? On the production side hog slaughter is expected to be somewhat larger for the entire year this year than it was last year. During the earlier portion of the year it has been running higher than the corresponding months of last year because of the larger fall pig crop. If farmers actually reduce their spring pig crop, as they have said they intended to, slaughter during the latter part of the year may well be somewhat lower than for the corresponding months last year. If hog production follows previous patterns, pig crops may be somewhat smaller for the next year or two. If so, hog slaughter will be correspondingly reduced.

On the margins side we have noted an increasing tendency for widening margins during the period of heavier marketings. There are some developments that indicate that this may be a continuing feature of our marketing system. The margin for marketing hogs and pork might be expected to continue to behave as a price charged in response to the changing demands for marketing services. And the demands for marketing services are high seasonally when large numbers of hogs are rushed to market.

Now for the demand side. Even though the demand for meat may not rise correspondingly with consumer income, the demand for all meats is expected to rise substantially to the extent that it will support an expanding meat production. The demand for beef may increase more than that for pork, thus continuing the longtime trend. One of the important jobs of this Workshop is that of finding ways and means to slow down, and perhaps even arrest, the tendency for pork to become a second class meat in relation to beef. For insofar as the type of hogs produced and the methods of merchandising pork in future years can be transformed or changed to better fit consumer tastes, the relative loss in demand for pork may well be halted.





